

What is claimed is:

1. Stable powderous formulations comprising a fat-soluble active ingredient in a matrix of a milk protein composition.
- 5 2. Formulations according to claim 1, wherein the milk protein composition is a native milk protein or partially hydrolyzed milk protein with a degree of hydrolysis of up to 25% or mixtures thereof having a protein content of more than 80 wt.-%.
- 10 3. Formulations according to claim 1, wherein the milk protein composition is a native milk protein or partially hydrolyzed milk protein with a degree of hydrolysis of up 15 % or mixtures thereof having a protein content of more than 80 wt.-%.
4. Formulations according to claim 1, wherein the milk protein composition is a native milk protein or partially hydrolyzed milk protein with a degree of hydrolysis of up 10 % or mixtures thereof having a protein content of more than 80 wt.-%.
- 15 5. Formulations according to any one of claims 1 to 4, wherein the milk protein is a caseinate or partially hydrolyzed caseinate.
6. Formulations according to any one of claims 1-5, wherein the milk protein composition contains additionally a plant protein or plant protein hydrolysate or mixture thereof.
7. Formulations according to claim 6 wherein the average molecular weight of at least 80 % of the plant protein hydrolysate is below 2500 Daltons.
- 20 8. Formulations according to claims 6 or 7, wherein the plant protein or plant protein hydrolysate is obtained from potato protein, soy protein, wheat protein, pea protein, rice protein or lupin protein.
9. Formulations according to any one of claims 1-8, wherein the milk protein composition contains additionally a carbohydrate or carbohydrate derivative, e.g. saccharose, invert sugar, glucose, fructose, xylose, lactose, maltose, xanthan gum, acacia gum, pectins, guar, carob gums, alginates, celluloses, cellulose derivatives, starch, modified starch and starch hydrolysates, such as dextrins and maltodextrins, especially such in the range of 5-65 dextrose equivalents (hereinafter: DE) and glucose syrup, especially such in the range of 20-95 DE.

10. Formulations according to any one of claims 1-9 further comprising an adjuvant.
11. Formulations according to claim 10 wherein the adjuvant is calcium silicate, silicic acid, starch or calcium carbonate, or mixture thereof.
12. Formulations according to any one of claims 1- 11, wherein the fat-soluble active ingredient is vitamin A, D, E or K, or a carotenoid, or a polyunsaturated fatty acid, or esters thereof, or mixtures thereof.
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13. Formulations according to claim 12, wherein the fat-soluble active ingredient is mixed with a plant or animal oil or fat, e.g. sunflower oil, palm oil or corn oil.
14. Formulations according to any one of claims 1- 13, further comprising a reducing sugar, particularly glucose, fructose, saccharose or xylose.
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15. Formulations according to any one of claims 1- 14, wherein the protein is cross-linked.
16. Food, beverages, animal feeds, cosmetics or drugs comprising a formulation according to any one of claims 1- 15.
- 15 17. Process for the preparation of formulations according to any one of claims 1- 15, which comprises preparing an aqueous emulsion of the fat-soluble active ingredient and the milk protein composition, if desired, adding a reducing sugar, converting the emulsion into a dry powder, and, if required, submitting the dry powder to cross-linking the protein by heat treatment or by treatment with a cross-linking enzyme.
- 20 18. A process according to claim 17 wherein a reducing sugar is added and the composition is submitted to crosslinking by heating.
19. A process according to claim 17 wherein the composition is submitted to crosslinking of the protein by treatment with a cross-linking enzyme, particularly transglutaminase.
- 25 20. The invention substantially as disclosed herein, especially with reference to the Examples.